MCR3U **Unit 1 Quiz #3 (1.4 & 1.5)** **Name:** Solutions

Simplify. Rationalize the denominator if necessary.

a) $\sqrt{32}$

$= \sqrt{16 \cdot 2}$

$= 4\sqrt{2}$ ✓

b) $\frac{4 \pm 18\sqrt{24}}{8}$

$= \frac{4 \pm 18\sqrt{4 \cdot 6}}{8}$ ✓

$= \frac{4 \pm 18 \cdot 2\sqrt{6}}{8}$

$= \frac{1}{4} \pm \frac{9}{36}\sqrt{6}$

$= \frac{1 \pm 9\sqrt{6}}{2}$ ✓

c) $\frac{5}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$= \frac{5\sqrt{3}}{3}$ ✓

THINK: What number do I multiply 32 by to get a perfect cube?

$1^3 = 1$
$2^3 = 8$
$3^3 = 27$
$4^3 = 64$

d) $\frac{(3+\sqrt{5})}{(4-\sqrt{3})} \cdot \frac{(4+\sqrt{3})}{(4+\sqrt{3})}$ ✓

$= \frac{12 + 3\sqrt{3} + 4\sqrt{5} + \sqrt{15}}{16 - 3}$ ✓

$= \frac{12 + 3\sqrt{3} + 4\sqrt{5} + \sqrt{15}}{13}$ ✓

e) $\sqrt{12} + 3\sqrt{50} - 2\sqrt{27}$

$= \sqrt{4 \cdot 3} + 3\sqrt{25 \cdot 2} - 2\sqrt{9 \cdot 3}$ ✓

$= 2\sqrt{3} + 3 \cdot 5\sqrt{2} - 2 \cdot 3\sqrt{3}$

$= 2\sqrt{3} + 15\sqrt{2} - 6\sqrt{3}$

$= -4\sqrt{3} + 15\sqrt{2}$ ✓

f) $\frac{4}{\sqrt[3]{32}} \cdot \frac{\sqrt[3]{2}}{\sqrt[3]{2}}$

$= \frac{4\sqrt[3]{2}}{\sqrt[3]{64}}$

$= \frac{4\sqrt[3]{2}}{4}$ ✓

$= \sqrt[3]{2}$